

Work Order ID 163596

Monday, July 03, 2017 7:28:32 AM

163596

ASAP

Page 1

Item ID: D5380-3

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Support Base

Start Date: 7/3/2017

Start Qty: 12.00

12

Cust Item ID:

Required Date: 7/4/2017

Req'd Qty: 12.00

12

Customer:

Reference:

DAS

21

9-89

Approvals:

Process Plan:

Date: JUL 03 2017

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

D5380

B

100

5.02

100

HAAS CNC VERTICAL MACHINING #1

HAAS I

Memo

2.64

HAAS CNC vertical machine #1

Machine as per Folio FB460

Folio Rev: AADwg Rev: B

Deburr

DAS

14

9-89

17/07/10

DAS

44

9-89

17-07-0

110

0.00

110

QC2- Inspect parts off machine FAI/FAIB

QC

Memo

0.12

Quality Control

DAS

14

9-89

17/07/10

DAS

44

9-89

17-07-C

QA: *[Signature]* Date: 17-10-31
 QA Closed: *[Signature]* Date: SEP 22 2017



WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only ☐

Work Order: <u>163596</u> Part No. <u>D53803</u> NCR No. <u>17-6599</u>		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☒ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Cross tube ☐ Water Jet ☐ Engineering ☐ Machining ☒ Small Fab ☐ Prod. Eng. Coord. ☐ Quality ☐ Thermoforming ☐ Finishing ☐ Rec/Store/Packaging ☐ Other ☐ Large Fab ☐ Composite ☐ Supplier ☐					
Date: <u>17-08-22</u>		Step #: <u>100</u>		QTY Effective: <u>12</u>			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				DAS <u>12</u> <u>17/8/23</u> 9.80 Completed By DAS <u>12</u> <u>17/8/23</u> 9.80 Lead hand / Supervisor Approval Verification PD 1708-22 QC / QA Coordinator Approval PD 17-08-22	
Dimension 1.512" $\pm$.010 is between 1.525" and 1.532"				Acceptable. Remaining dims are OK, no effect on fit or strength. open CAR to revise dimension 1.512 for a larger tolerance					
Root Cause Environment ☐ No Re-verification ☐ Design ☐ Operator ☐ Doc/Data ☒ Offset/Setup ☐ Equip/Tooling ☐ Supplier ☐ Handling/Pre ☐ Training ☐ Material ☐ Use for Testing ☐ Internal Transport ☐ Poor Information ☐ Tribal Knowledge ☐ Rushing ☐ LOA ☐ Product Improvement ☐ Substation ☐ Process Improvement ☐ Past Expiry Date ☐ Manufacturing Process ☐ Misidentified ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Temperature/Cure ☐ Power Loss/Surge ☐ Positioned Wrong ☐ Bending ☐ Set-up ☐ Folio/Program ☐ Outside Dimensions ☐ Centre Not Concentric ☐ BOM/Route ☐ Grain ☐ Over/Under tolerance ☐ Cracks ☐ Broken/Damage/Defect ☐ Weld ☐ Part Incorrect ☐ Crimp/Kink/Ripple/Wave ☐ Inspection Incomplete/Unqualified ☐ Wrong Stock Pulled ☐ Part Lost/Missing ☐ Cuffs ☐ Contamination ☐ Out of Sequence ☐ Part Moved ☐ Crushing ☐ Countersink ☐ Off-set ☐ Drawing ☒ Heat Treat ☐ Cut Too Short ☐ Mislabeled ☐ Finish ☐ Wave/Twist in Tube ☐ Instructions Incomplete/Unclear ☐ Fit/Function ☐ Misread ☐ Marks/Chatter ☐ Drill Holes ☐ Misaligned/off center ☐ Turning Sequence ☐						OTHER: ☐	

Work Order ID 163596***163596***

Page 2

Monday, July 03, 2017 7:28:32 AM

Item ID: D5380-3

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Support Base

Start Date: 7/3/2017

Start Qty: 12.00

12

Cust Item ID:

Required Date: 7/4/2017

Req'd Qty: 12.00

12

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

120

QC8- Inspect parts - second check

0.00

120

QC

Memo

0.24

Quality Control

12

6

DAS
49
9-89

17/07/16

121

QC5- Inspect part completeness to step on W/O

0.00

121

QC

Memo

0.24

Quality Control

(12)

17.08.22

DAS

130

Identify as per dwg & Stock Location: **LG56**

0.00

130

Packaging

Memo

0.12

Packaging

LOCATION: **LG054**

12

DAS
41
9-89

AUG 23 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐								
Misidentified ☐	Past Due ☐								
		OTHER : ☐							

Work Order ID 163596***163596***

Page 3

Monday, July 03, 2017 7:28:32 AM

Item ID: D5380-3 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Support Base
Start Date: 7/3/2017 Start Qty: 12.00 ***12*** Cust Item ID:
Required Date: 7/4/2017 Req'd Qty: 12.00 ***12*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	QC21- Final Inspection - Work Order Release	0.00							
140							DAS 21 9-88		
QC	Memo	1.20							
Quality Control									

DAS
21
9-88

AUG 24 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
OTHER : ☐									

Picklist Print

Monday, July 03, 2017 7:28:35 AM

Page 1

Work Order ID: 163596

163596

Parent Item: D5380-3

D5380-3

Parent Item Name: Support Base

Start Date: 7/3/2017

Required Date: 7/4/2017

Start Qty: 12.00

Required Qty: 12.00

Comments: IPP Rev: A New issue JFS 16/02/03 Verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D5380-3TRN		Manufactured	No			100	Each	0.0000	0.5	6			
D5380-3TRN													
Support Base Turning Detail													

DAS
44
9.85 17-07-09

163594 → 6

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

DART AEROSPACE LTD		Work Order: 163596
Description: Support Base		Part Number: D5380-3
Inspection Dwg: D5380	Rev: B	Page 1 of 1

FIRST ARTICLE INSPECTION DIMENSION SHEET

Dim	Min	Max	Go/No Go Gauge	Record Actual Dimensions				
				1	2	3	4	5
HAAS Section								
AA	3.890	3910		3.901	3.901	3.900	3.900	3.900
AB	0.256	0.263		.257	.257	.257	.257	.257
AC	3.540	3.560		3.550	3.550	3.550	3.550	3.550
AD	1.765	1.785		1.775	1.775	1.775	1.775	1.775
AE	0.590	0.610		.600	.600	.600	.600	.600
AF	1.140	1.160		1.150	1.150	1.150	1.150	1.150
AG	2.290	2.310		2.300	2.300	2.300	2.300	2.300
AH	0.490	0.510		.501	.501	.500	.500	.500
AI	0.115	0.135		.125	.125	.125	.125	.125
AJ	0.240	0.260		.250	.250	.250	.250	.250
AK	0.140	0.160		.151	.151	.151	.151	.151
AL	1.502	1.522		1.531	1.530	1.532	1.529	1.528
AM	0.100	0.125		.113	.114	.114	.114	.112
AN	0.053	0.073		.063	.063	.063	.063	.063
AO	0.220	0.280		.250	.250	.250	.250	.250
AP	0.220	0.280		.250	.250	.250	.250	.250
AQ	0.170	0.230		.200	.200	.200	.200	.200
AR								
AS								
AT								
AU								
AV								
AW								
AX								
AY								
AZ								
Ensure that Ø " bore is perpendicular to " bore within "								
Accept/Reject								

Measured by: F. DAS	Date: 17-07-09
Audited by: 49	Date: 49 11/07/15
Preliminary Approval:	Date:

Rev	Date	Change	Revised by	Approved
A	17.01.31	New Issue	KJ	

DART AEROSPACE LTD		Work Order:	163596
Description: Support Base		Part Number:	D5380-3
Inspection Dwg: D5380	Rev: B	Page 1 of 1	

FIRST ARTICLE INSPECTION DIMENSION SHEET

Dim	Min	Max	Go/No Go Gauge	Record Actual Dimensions				
				16	17	18	19	20
HAAS Section								
AA	3.890	3910		3.900	3.902	3.902	3.894	3.894
AB	0.256	0.263		.257	.257	.257	.257	.257
AC	3.540	3.560		3.550	3.550	3.550	3.543	3.543
AD	1.765	1.785		1.775	1.775	1.775	1.770	1.780
AE	0.590	0.610		.600	.600	.600	.600	.606
AF	1.140	1.160		1.150	1.150	1.150	1.150	1.150
AG	2.290	2.310		2.300	2.300	2.300	2.300	2.300
AH	0.490	0.510		.501	.500	.500	.500	.506
AI	0.115	0.135		.125	.125	.125	.125	.125
AJ	0.240	0.260		.250	.250	.250	.250	.250
AK	0.140	0.160		.157	.157	.157	.150	.150
AL	1.502	1.522		1.528	1.525	1.527	1.522	1.521
AM	0.100	0.125		.112	.112	.112	.112	.112
AN	0.053	0.073		.063	.063	.063	.063	.063
AO	0.220	0.280		.250	.250	.250	.250	.250
AP	0.220	0.280		.250	.250	.250	.250	.250
AQ	0.170	0.230		.200	.200	.206	.200	.206
AR								
AS								
AT								
AU								
AV								
AW								
AX								
AY								
AZ								
Ensure that Ø " bore is perpendicular to " bore within "								
Accept/Reject								

Measured by:	DA5 SC	Date:	17/07/10
Audited by:	49 9-89	Date:	17/07/10
Preliminary Approval:		Date:	

Rev	Date	Change	Revised by	Approved
A	17.01.31	New Issue	KJ	

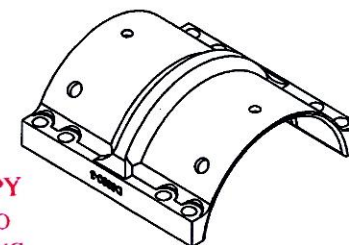
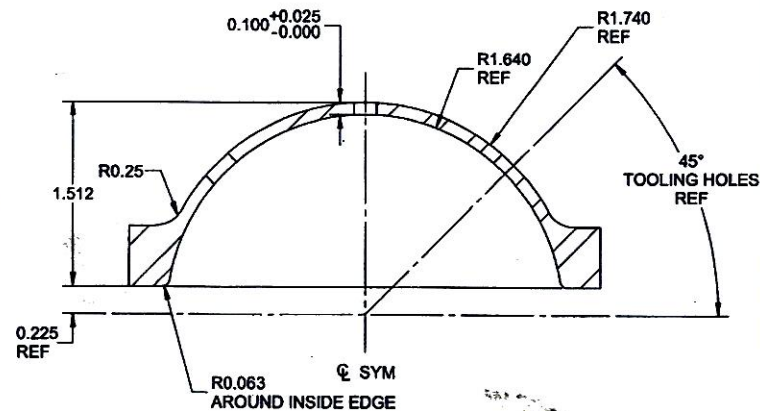
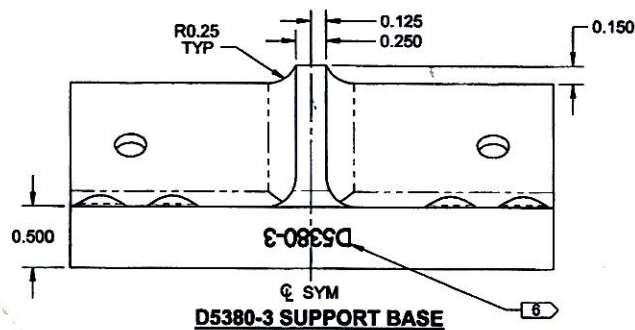
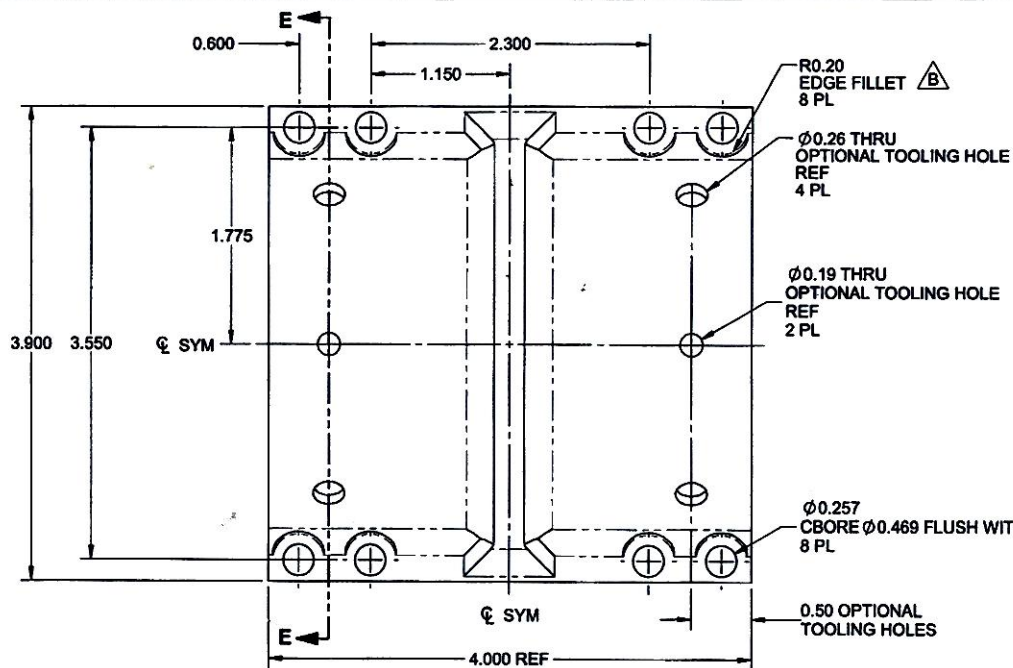
DART AEROSPACE LTD		Work Order: 163596
Description: Support Base		Part Number: D5380-3
Inspection Dwg: D5380	Rev: B	Page 1 of 1

FIRST ARTICLE INSPECTION DIMENSION SHEET

Dim	Min	Max	Go/No Go Gauge	Record Actual Dimensions				
				1/	12	3	4	5
HAAS Section								
AA	3.890	3910		3.900	3.900			
AB	0.256	0.263		.257	.257			
AC	3.540	3.560		3.550	3.550			
AD	1.765	1.785		1.775	1.775			
AE	0.590	0.610		.600	.600			
AF	1.140	1.160		1.150	1.150			
AG	2.290	2.310		2.300	2.300			
AH	0.490	0.510		.500	.501			
AI	0.115	0.135		.125	.125			
AJ	0.240	0.260		.250	.250			
AK	0.140	0.160		.150	.150			
AL	1.502	1.522		1.520	1.520			
AM	0.100	0.125		.111	.113			
AN	0.053	0.073		.063	.063			
AO	0.220	0.280		.250	.250			
AP	0.220	0.280		.250	.250			
AQ	0.170	0.230		.200	.200			
AR								
AS								
AT								
AU								
AV								
AW								
AX								
AY								
AZ								
Ensure that Ø " bore is perpendicular to " bore within "								
Accept/Reject								

Measured by: DAS 44 9-89	Date: 17-07-11
Audited by: DAS 49 9-89	Date: 17/07/16
Preliminary Approval:	Date:

Rev	Date	Change	Revised by	Approved
A	17.01.31	New Issue	KJ	



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 163596 MJS
170703

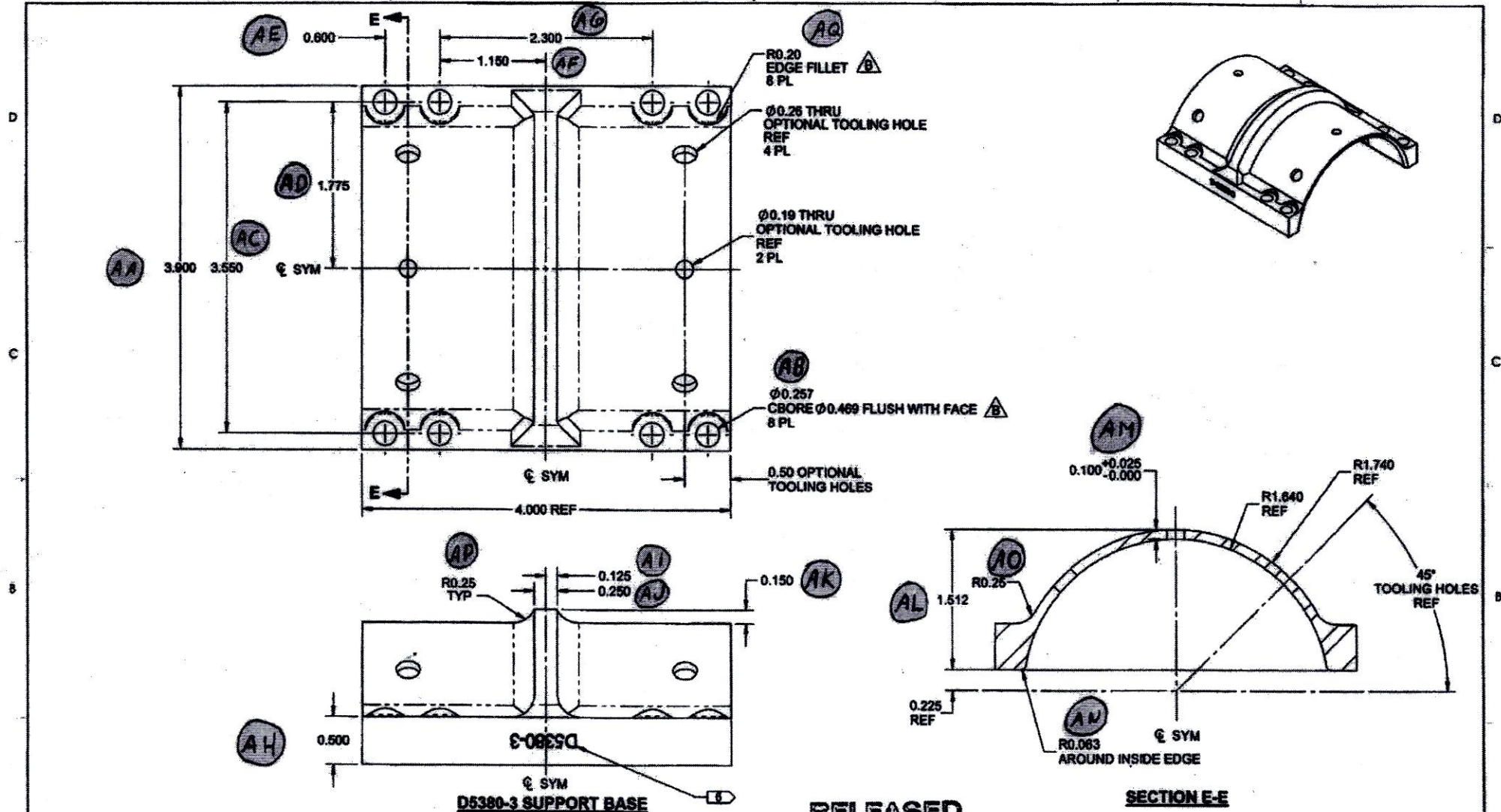
- NOTES:
- 1) MATERIAL: MAKE FROM D5380-3TRN
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: DART P/N WITH 0.125 HIGH LETTERING AND 0.005-0.010 DEEP PER DART QSI 044 6.3
 - 7) WEIGHT: 0.89 lbs
 - 8) PROFILE ALL NON DIMENSIONED FEATURES PER CAD FILE "D5380-3-REV.B.STP"

RELEASED
2016 NOV 08

SECTION E-E

DESIGN	ML	DART AEROSPACE LTD	
DRAWN	ML	HAWKESBURY, ONTARIO, CANADA	
CHECKED	AJS	DRAWING NO.	REV. B
MFG. APPR.	JFS	D5380	SHEET 3 OF 4
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	SUPPORT	NTS
DATE	16.07.07	COPYRIGHT © 2016 BY DART AEROSPACE LTD	

8 7 6 5 4 3 2 1



- NOTES:
- 1) MATERIAL: MAKE FROM D5380-3TRN
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: DART PIN WITH 0.125 HIGH LETTERING AND 0.005-0.010 DEEP PER DART QSI 044 6.3
 - 7) WEIGHT: 0.89 lbs
 - 8) PROFILE ALL NON DIMENSIONED FEATURES PER CAD FILE 'D5380-3-REV.B.STP'

RELEASED

2016 NOV 08

SECTION E-E

DESIGN	ML	DART AEROSPACE LTD	
DRAWN	ML	HAWKESBURY, ONTARIO, CANADA	
CHECKED	AJS	DRAWING NO.	REV. B
MFG. APPR.	JFS	D5380	SHEET 3 OF 4
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	SUPPORT	NTS
DATE	16.07.07	COPYRIGHT © 2016 BY DART AEROSPACE LTD	